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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/476,219	12/30/1999	Robert J. Fite	884.182US1	7477
21186	7590	10/20/2005	EXAMINER	
SCHWEGMAN, LUNDBERG, WOESSNER & KLUTH 1600 TCF TOWER 121 SOUTH EIGHT STREET MINNEAPOLIS, MN 55402			HAN, YOUNGHUIE JESSICA	
			ART UNIT	PAPER NUMBER
			2838	

DATE MAILED: 10/20/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/476,219	FITE, ROBERT J.	
	Examiner	Art Unit	
	Y. J. Han	2838	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 August 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

2. Claims 1-10 and 12-16 are rejected under 35 U.S.C. 102(a) as being anticipated by Redl et al (6,064,187).

Redl discloses sensing an output current (64) drawn from the DC-DC converter; converting the sensed output current to a voltage signal indicating the sensed output current (78/76); adjusting the voltage signal indicating the sensed output current such that the voltage is at a maximum current voltage level when the current drawn is at a maximum load current level and the voltage is at a minimum current voltage level when the current drawn is at a minimum but nonzero load current level (see figures 10a-b); and subtracting the adjusted voltage signal from the voltage provided by the DC-DC converter (see figure 9, abs., and col. 10, line 65 thru col. 11 line 15).

3. Claims 1-5, 7-10, and 13-16 are rejected under 35 U.S.C. 102(a) as being anticipated by Rincon-Mora et al (6,188,211).

Rincon-Mora et al discloses sensing an output current (40) drawn from the DC-DC converter; converting the sensed output current to a voltage signal indicating the sensed output current (40,42); adjusting the voltage signal indicating the sensed output current such that the voltage is at a maximum current voltage level when the current drawn is at a maximum load

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current level and the voltage is at a minimum current voltage level when the current drawn is at a minimum but nonzero load current level (see figures 2a-b); and subtracting the adjusted voltage signal from the voltage provided by the DC-DC converter (see figure 1, and col. 6, line 35 thru col. 7 line 52).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Redl et al (6,064,187) in view of Covington et al (6,031,749).

Redl et al meet all of the claim limitations except for the use of software executing on a processor. Covington et al, however, teaches that use of software executing on a processor is well known in the power supply art (see figs. 8A-C). Therefore, it would have been obvious to one having ordinary skill in the art to employ the software in Redl et al, as taught by Covington et al, in order to enhance overall reliability and the reduction in circuit complexity.

Response to Argument

6. The applicant's argument directed to the differences between the instant invention and the applied reference has been fully considered but is not deemed to be persuasive as applied to the claims.

With respect to Redl et al. (6,064,187), applicant argues that the Redl et al reference describes opposite characteristics as compared to the instant application. Applicant points out that “As can be seen most clearly in these Figures 10a and 10b, an increase in current load results in a decrease in output current, as is the case with prior art voltage regulators and DC-DC converters.” With this understanding, applicant concludes that “the pending claims recite a DC-DC converter having opposite characteristics, such that the output voltage is at a maximum level when the current drawn is at a maximum load current level and the voltage is at a minimum level when the current drawn is at a minimum but nonzero load current level.” This, however, is mischaracterization of the applicant’s invention. Independent claim 7 clearly contradicts applicant’s argument. Claim 7 recites explicitly “that the voltage is at a minimum level when the current drawn is at a maximum load current level and the voltage is at a maximum level when the current drawn is at a minimum but nonzero load current level.” Thus, applicant’s invention is no different than the prior art. Figure 3 also supports such relationships between the output voltage level and the current load level. Note also that the prior art Figures 1 and 2 are no different than the applicant’s invention of Figures 4 and 5. Applicant further should note that the term “maximum current voltage level” corresponds to the voltage at a minimum level ($V_{I(max)}$). Similarly, the term “minimum current voltage level” corresponds to the voltage at a maximum level ($V_{I(k)}$). Figure 3 clearly illustrates such relationships.

With respect to Rincorn-Mora et al. (6,188,211), applicant contends that the reference “does not appear capable of monitoring or using output current to adjust voltage.” See column 6, lines 36-44. On the contrary, Rincorn-Mora et al discloses that “FIG. 2a illustrates the behavior of output voltage V_{out} in response to changes in the load current I_{load} drawn by load 11 in the

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example of FIG. 1, as illustrated in FIG. 2b.” (col. 6, lines 38-41) As for the applicant’s same argument that “a decrease in output voltage when output current increases, as shown in the cited Figures 2a and 2b,” Pending claims do not recite “that the output voltage is at a maximum level when the current is at a maximum level and the voltage is at a minimum level when the current drawn is at a minimum but nonzero level.”

Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

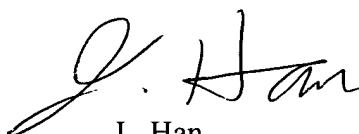
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Y. J. Han whose telephone number is 571-272-2078. The examiner can normally be reached on Mon-Fri 5:30am-2:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner’s supervisor, Michael Sherry can be reached on 571-272-2084. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read 'J. Han', is positioned above the printed name.

J. Han
Primary Examiner
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